

PATENT  
Serial No. 10/526,304  
Amendment in Reply to Final Office Action mailed on July 17, 2006

REMARKS

The following remarks are being filed in response to the Final Office Action mailed on July 17, 2006, which has been reviewed and carefully considered. Reconsideration and allowance of the present application in view of the following remarks and arguments are respectfully requested.

In the Final Office Action, claims 1-19 are rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 6,992,965 (Glushko). It is respectfully submitted that claims 1-19 are patentable over Glushko for at least the following reasons.

Glushko shows a system for reading a three-dimensional optical disk where a light source 12 provides a reading beam Br to excite fluorescent data regions Rf shown in FIGs 2A and 4A. The interaction between the reading beam Br and the fluorescent data regions Rf produces output fluorescent radiation Bf.

As clearly shown in all the relevant figures in Glushko, namely, FIGs 2A, 2B, 4A, 9-10 and 12, the reading beam Br from the light source 12 is transmitted through a central zone 14A of a beam splitter 14 toward the fluorescent data regions Rf through an objective lens 18.

PATENT  
Serial No. 10/526,304

Amendment in Reply to Final Office Action mailed on July 17, 2006

In stark contrast, the present invention as recited in independent claim 1, amongst other patentable elements, requires (illustrative emphasis provided):

a dichroic mirror arranged between the exciting source and the lens, and arranged to reflect the exciting beam towards the objective lens; and

a detector unit configured to detect the excited radiation collected on the objective lens, wherein the reflected exciting beam has a numerical aperture lower than the objective lens numerical aperture.

It is respectfully submitted that Glushko does not teach or suggest dichroic mirror arranged to reflect the exciting beam towards the objective lens, as recited in independent claim 1. Thus, there is no teaching or suggestion in Glushko of any reflected exciting beam, as recited in independent claim 1. Rather, Glushko merely teaches that the reading beam Br from the light source 12 is transmitted through the beam splitter 14 toward the objective lens 18.

Further, Glushko specifically teaches that "the beam splitter 14 [dichroic mirror] is formed with zones 14a and 14b having different properties with respect to the incident radiation Br [exciting beam] and fluorescent radiation Bf [exciting radiation]."

PATENT  
Serial No. 10/526,304

Amendment in Reply to Final Office Action mailed on July 17, 2006

(Column 7, lines 63-66, emphasis added.) "The circular zone 14a is high transitive for all wavelengths (i.e. for both reading [exciting beam] and fluorescent radiation [exciting radiation] Br and Bf)." (Column 8, lines 1-3, emphasis added.) In contrast, zone 14b "blocks the incident radiation [exciting beam] by its one side facing the light source 12, and has a reflective opposite side facing the disk" that is read (Column 8, lines 5-8, emphasis added.). As should be clear from the above, the transmissive and reflective qualities of the dichroic mirror 14 of Glushko vary from zone 14a to zone 14b.

In stark contrast, the present invention as recited in independent claim 11, amongst other patentable elements, requires (illustrative emphasis provided):

a dichroic mirror arranged between the exciting source and the lens, and configured to transmit the exciting beam towards the objective lens; and a detector unit configured to detect the excited radiation collected on the objective lens, wherein the transmitted exciting beam has a numerical aperture lower than the objective lens numerical aperture, and wherein the dichroic mirror is configured to transmit over an entire surface of the dichroic mirror, the excited radiation collected on the objective lens

PATENT  
Serial No. 10/526,304  
Amendment in Reply to Final Office Action mailed on July 17, 2006

Transmitting over the entire surface of the dichroic mirror is nowhere taught or suggested in Glushko. Rather, Glushko teaches a dichroic mirror 14 that transmits only through a portion thereof, namely, through zone 14a, while zone 14b blocks any transmission. Thus, Glushko teaches away from a dichroic mirror that is configured to transmit over its entire surface, as recited in independent claim 11.

Accordingly, it is respectfully submitted that independent claims 1 and 11 should be allowable, and allowance thereof is respectfully requested. In addition, it is respectfully submitted that claims 2-10 and 12-19 should also be allowed at least based on their dependence from amended independent claims 1 and 11.

Claims 2-3 also contain patentable features, since Glushko does not teach or suggest that the objective lens numerical aperture is between 0.5 and 1; and the numerical aperture of the exciting beam (produced by the exciting source) is between 0.4 and 0.7. Rather, Glushko merely teaches on column 8, lines 44-50, referring to FIGs 4A-4B:

The amount of fluorescent radiation Bf that propagates substantially along the optical axis OA (with the numerical aperture up to 0.2-0.4),

PATENT  
Serial No. 10/526,304

Amendment in Reply to Final Office Action mailed on July 17, 2006

i.e. within the upper-cone C<sub>1</sub>, is small, as compared to the fluorescent radiation propagating inclined to the optical axis OA (with the numerical aperture NA, from 0.2-0.4 up to 0.6-0.7), within a ring-shaped cone segment C<sub>2</sub>.  
(Emphasis added)

Thus, Glushko merely teaches that the fluorescent radiation Bf reflected from the fluorescent data regions Rf has a numerical aperture up to 0.2-0.4, which is smaller than the numerical aperture (up to 0.6-0.7) of the fluorescent radiation propagating cone segment C<sub>2</sub>. These features of Glushko do not teach or suggest that the objective lens numerical aperture is between 0.5 and 1; and the numerical aperture of the exciting beam (produced by the exciting source) is between 0.4 and 0.7, as recited in claims 2-3.

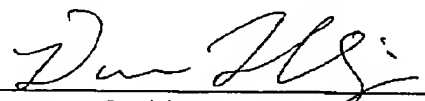
In addition, Applicants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Applicants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

PATENT  
Serial No. 10/526,304  
Amendment in Reply to Final Office Action mailed on July 17, 2006

It is believed that no additional fees or charges are currently due. However, in the event that any additional fees or charges are required for entrance of the accompanying amendment, they may be charged to Applicants' representatives Deposit Account No. 50-3649. In addition, please credit any overpayments related to any fees paid in connection with the accompanying amendment to Deposit Account No. 50-3649.

In view of the above, it is respectfully submitted that the present application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

Respectfully submitted,

By   
Dicran Halajian, Reg. 39,703  
Attorney for Applicant(s)  
August 28, 2006

THORNE & HALAJIAN, LLP  
Applied Technology Center  
111 West Main Street  
Bay Shore, NY 11706  
Tel: (631) 665-5139  
Fax: (631) 665-5101